UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,177	11/03/2003	Mukesh K. Puri	03-0291	3593

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EXAMINER
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ART UNIT	PAPER NUMBER
2117	

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Please find below and/or attached an Office communication concerning this application or proceeding. ·

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/700,177	PURI ET AL.
	Examiner	Art Unit	
	JAMES C. KERVEROS	2117	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>20 July 2007</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-18</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-18</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>03 November 2003</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some * c) ☐ None of:

         1. ☐ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____.

         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

This is a Final Office Action in response to the AMENDMENT filed July 20, 2007.

Claims 1-18 are presently under examination and still pending in the Application.

Rejection of the Claims under 35 U.S.C. 112, second paragraph, in the Prior

Office Action, has been withdrawn in view of the amendment to the claims.

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this

application because the drawings Fig. 1-3 are informal. Formal drawings may be

submitted upon Allowance of the Application.

Response to Arguments

Applicant's arguments with respect to claims 1-18 have been considered but are

moot in view of the new grounds of rejection, as set forth in the present Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out
and distinctly claiming the subject matter which the applicant regards as his
invention.

Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Claims 1 and 12, the limitation, "flagging those memories whose repair exceeds

a pre-determined limit" renders the claims indefinite, because it is unclear how a

quantity "a pre-determined limit" can be compared with is an abstract expression

"repair". Normally, one compares a reference quantity with a measured quantity.

Claims 1 and 12, the limitation, "using the repair solution to repair the memories

which need to be repaired and which were not previously flagged" renders the claims

indefinite, because the expression "need to be repaired" fails to further limitation the

claims, since there is no condition recited in the claims or described in the specification

for the need to repair the memories. The limitation should be changed to --using the

repair solution to repair the memories, which were not previously flagged--.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Zorian

(US 7,237,154) filed: February 25, 2002.

Regarding independent Claims 1, 12, Zorian discloses a method and apparatus that generate an augmented repair signature to repair all of the defects detected in a first test of a memory as well as in a second test of the memory, comprising:

Testing the memories a first time; "A first test of the memory occurs and a first redundancy allocation algorithm 232 is run. The redundancy allocation algorithm identifies defects and then allocates redundant components to replace those identified defects", Fig. 2b.

Generating a repair solution; "The reconfiguration logic collects data from the results of the redundancy allocation algorithm to generate a first repair signature 234. The first test and/or the repair algorithms may be performed by logic on the chip or by test equipment external to the chip".

Using the repair solution (first repair signature 234) to repair the memories while flagging those memories whose repair exceeds a pre-determined limit; "The repair signature (234) includes a coded sequence to allocate redundant components to substitute for defective components in order to make the memory usable. The coded sequence loads into registers associated with the redundancy allocation logic to replace all of the identified defective components with redundant components".

Making an on-chip assessment to test the memories a second time; "A quality assurance built in self-test 236 runs to determine that all defects in the memory have been eliminated through the use of redundant components and that the assigned redundant components have no defects".

Using the repair solution (234) to repair the memories not previously flagged;

"The configuration logic in the processor may receive the existing first repair signature

234 from a storage device external to the chip or from the fuse box. When the

reconfiguration logic receives the first repair signature 234, the reconfiguration logic

may initiate a second test algorithm and second redundancy allocation algorithm 238 to

attempt to repair the memory. The test logic provides the results of the second test, thus

all known and identified defects, to the redundancy algorithm to repair all of the defects

in the memory. The reconfiguration logic then generates a second repair signature 240.

After the redundancy allocation logic assigns the corresponding redundant components

to replace identified defective components, then a quality assurance built in self test of

the memory 236 runs one more time just to make sure that the redundant components

substituted for the defective components, also do not have defects".

Regarding Claims 2-11, 13-18, Zorian discloses, with respect to claimed

limitation of loading a counter with values to establish a threshold for pass/fail criteria,

Built-In Redundancy Analysis (BIRA) engine 802, Figs. 8, having a plurality of registers

for allocating redundant columns and rows. The registers (804) store information for

final self-repair. If the memory is diagnosed as repairable the final contents of the

registers contain the addresses of rows and columns to be replaced with the

corresponding spare elements. The BIRA engine 802 determines whether a memory

array will be repairable or not repairable, based on the assignment of redundant rows or

columns.

If at least two faulty cells are encountered in a word either in the lower bank or the upper bank of the memory array, then the row requires repair with a redundant row. If an available redundant row does not exist, then the memory array is considered not repairable.

If a single faulty cell is encountered in a word either in the lower bank or the upper bank of the memory array then a redundant column is used for repair, if available. If no spare column is available but a spare row is available, then a redundant row is used for repair. Otherwise, the memory array is considered not repairable.

In this case, the pre-determined limit corresponds to the number of spare rows or columns, where the pre-determined limit is used as a criterion to determines whether a memory array is repairable or not repairable, as described previously.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to JAMES C. KERVEROS whose telephone number is

(571) 272-3824. The examiner can normally be reached on 9:00 AM TO 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jacques H. Louis-Jacques can be reached on (571) 272-4150. The fax

phone number for the organization where this application or proceeding is assigned is
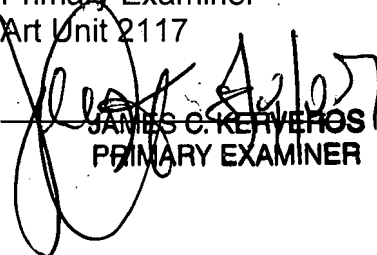
571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner
Art Unit 2117

Date: 9 August 2007
Office Action: Final Rejection

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